



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,320	11/12/2003	Craig S. Gittleman	GP-303297	6448

7590

08/15/2005

CARY W. BROOKS

General Motors Corporation

Legal Staff, Mail Code 482-C23-B21

P.O. Box 300

Detroit, MI 48265-3000

EXAMINER

SPITZER, ROBERT H

ART UNIT

PAPER NUMBER

1724

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/706,320

Applicant(s)

GITTLEMAN ET AL.

Examiner

Robert H. Spitzer

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-71 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-71 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/26/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8, 11, 13-33, 36, 38-54, 56, and 58-71 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by the disclosure of Fuderer et al. (3,986,849), who show a PSA process and apparatus that utilize the same process steps as are recited in these claims.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuderer et al. (3,986,849) in view of Lemcoff et al. (5,820,656). The claims differ from the disclosure of Fuderer et al. ('849) in the valves being rotary valves at both the feed and product end of the adsorber vessels. Lemcoff et al. ('656) show the use of a separate rotary valve at both the feed end and the product end of adsorber vessels as an alternative to the use of multiple fixed valves. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to substitute a separate

Art Unit: 1724

rotary valve for both the feed and product valves of the adsorber vessels of Fuderer et al. ('849), in view of such showing by Lemcoff et al. ('656).

Claims 10,35 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuderer et al. (3,986,849) in view of Lemcoff et al. (5,807,423). The claims differ from the disclosure of Fuderer et al. (849) in the valves for the feed and product gases being a single rotary valve. Lemcoff et al. ('423) show the use of a single rotary valve for both the feed and product streams from multiple adsorber vessels, as an alternative to the use of fixed valves. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to substitute a single rotary valve, for both the feed end and product end valves of the adsorber vessels of Fuderer et al. ('849) as an alternative to the use of multiple fixed valves, in view of such showing by Lemcoff et al. ('423).

5. Claims 12,37 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuderer et al. (3,986,849) in view of either Towler et al. (6,299,994) or Gittleman et al. (2002/0110504). The claims differ from the disclosure of Fuderer et al. ('849) in the product hydrogen gas being sent directly into a fuel cell. Both Towler et al. ('994) and Gittleman et al. (2002/0110504) show that a purified hydrogen product gas can be fed directly into a fuel cell. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to direct the purified hydrogen product gas from the PSA process and apparatus of Fuderer et al. ('849) directly into a fuel cell, in view of the showing of either Towler et al. ('994) or Gittleman et al. (2002/0110504), when such fuel cell needs such purified hydrogen gas.

Art Unit: 1724

6. The remaining references listed on both the PTO-1449 and the PTO-892 show art of interest.

7. Applicants response to this Office action should also include the following editorial changes: para. [0018], line 1, "1 11837082A1" should be "1,118,370 A1"; para. [0019], line 7, "discloses s" should be "discloses a"; para. [0021], line 4, "at pressure at" should be "at a pressure of"; para. [0021], lines 2 and 6, "of fluent" should be "effluent"; para. [0022], line 8, "retinate" should be "retentate"; para. [0027], line 2, "figure" should be "Figure"; para. [0033], line 2, "figure" should be "Figure"; para. [0035], line 2, "figure" should be "Figure"; para. [0037], line 12, "removed" should be "remove"; para. [0045], line 5, "figure" should be "Figure"; para. [0046], lines 1 and 2, "figure" should be "Figure"; para. [0047], line 7, "figure" should be "Figure"; para. [0056], lines 3 and 5, "figure" should be "Figure"; para. [0057], line 3, "figure" should be "Figure"; para. [0058], line 4, "figure" should be "Figure"; para. [0059], line 4, "figure" should be "Figure"; para. [0066], lines 7 and 9, "figure" should be "Figure"; para. [0067], line 11, "feed plate port 70" should be "product port plate 70"; para. [0069], lines 1,9,10 and 12, "88-102" should be "88,90,92,94,96,98,100 and 102"; para. [0073], lines 3 and 4, "figure" should be "Figure"; para. [0074], lines 2 and 3, "figures" should be "Figures", and in line 5, "figure" should be "Figure"; para. [0078], line 2, "figures" should be "Figures", and in line 3, "figure" should be "Figure"; para. [0079], line 2, "figures" should be "Figures", and in line 3, "figure" should be "Figure"; and, in claim 35, line 3, "fee" should be "feed".

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert H. Spitzer whose telephone number is (571)

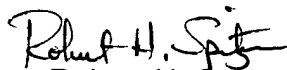
Art Unit: 1724

272-1167. The examiner can normally be reached on Monday-Thursday from (5:30AM-4:00PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

August 10, 2005


Robert H. Spitzer
Primary Examiner
Art Unit 1724
August 10, 2005